We claim:

1. A light-emitting device comprising:

a heterostructure of III-nitride materials comprising an active region having a peak emission wavelength, an n-layer, and a p-layer;

a p- and an n-electrode, the p-electrode being attached to the p-layer, the n-electrode being attached to the n-layer; and

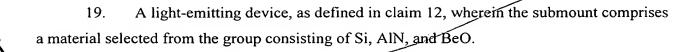
a superstrate, having a refractive index greater than 1.8, attached to the heterostructure.

- 2. A light-emitting device, as defined in claim 1, wherein the superstrate has an absorption coefficient less than 3 cm⁻¹ at the peak emission wavelength.
- 3. A light-emitting device, as defined in claim 1, wherein the p-electrode has an absorption less than 25%.
- 4. A light-emitting device, as defined in claim 1, wherein at least one of the layers comprising the heterostructure is textured.
- 5. A light-emitting device, as defined in claim 1, wherein the superstrate is selected from a group that includes SiC, ZnO, YAG, ZnSe, ZnS, zirconia, diamond, and CdS.
- 6. A light-emitting device, as defined in claim 5, wherein the superstrate is SiC and has a resistivity greater than $0.5 \Omega cm$.
- 7. A light-emitting device, as defined in claim 1, wherein at least one surface of the superstrate is roughened.
- 8. A light-emitting device, as defined in claim 1, wherein a top surface area of the superstrate is larger than a bottom surface area of the superstrate.
- 9. A light-emitting device as defined in claim 1, wherein a portion of the pelectrode interposes portions of the n-electrode.

- 10. A light-emitting device, as defined in claim 1, wherein the p-electrode comprises Au/NiO_x/Al.
- 11. A light-emitting device, as defined in claim 1, wherein light is extracted from the active region through the superstrate.
 - 12. A light-emitting device, as defined in claim 1, further comprising: a submount; an n-interconnect connecting the n-electrode to the submount; and a p-interconnect connecting the p-electrode to the submount.
- 13. A light-emitting device, as defined in claim 12, wherein the n-interconnect and p-interconnect are selected from the group consisting of solder, elemental metals, metal alloys, semiconductor-metal alloys, thermally and electrically conductive pastes, thermally and electrically conductive compounds, epoxies, eutectic joints, Au stud-bumps, and solder bumps.
 - 14. A light-emitting device, as defined in claim 12, further comprising:

 a p-conductive interface disposed between the p-interconnect and the p-electrode;
 and

 an n-conductive interface disposed between the n-interconnect and the nelectrode.
- 15. A light-emitting device, as defined in claim 14, wherein the p-conductive interface and the n-conductive interface comprise wettable metals.
- 16. A light-emitting device, as defined in claim 14, wherein the lateral corss sectional area of the n-conductive interface and the p-conductive interface is at least 15% of an area of the p-electrode.
- 17. A light-emitting device, as defined in claim 14, further comprising a barrier layer disposed between the p-electrode and the p-conductive interface.
- 18. A light-emitting device, as defined in claim 17, wherein the barrier layer is selected from the group consisting of Ni, Cr, Cu, and Ti.



20. A light-emitting device, as defined in claim 12, wherein the submount has a thickness less than 250 μm.